



Amplex

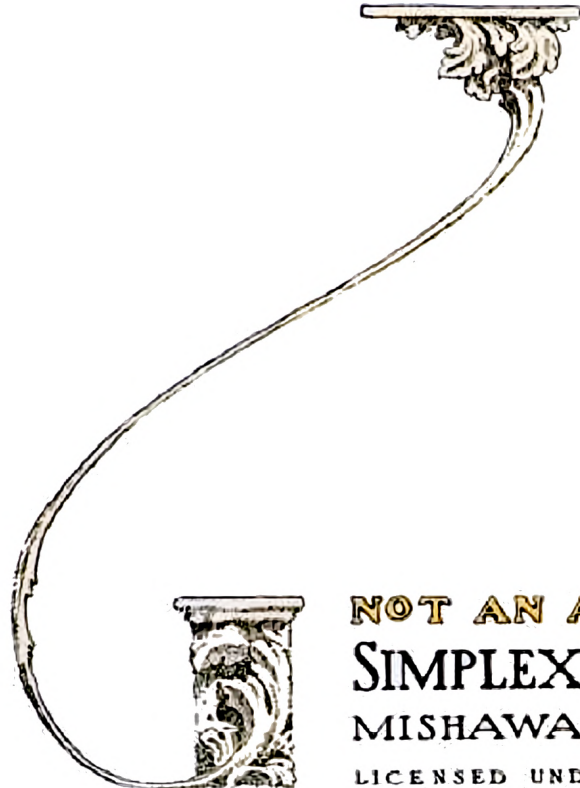


The
Amplex

MOTOR CARS

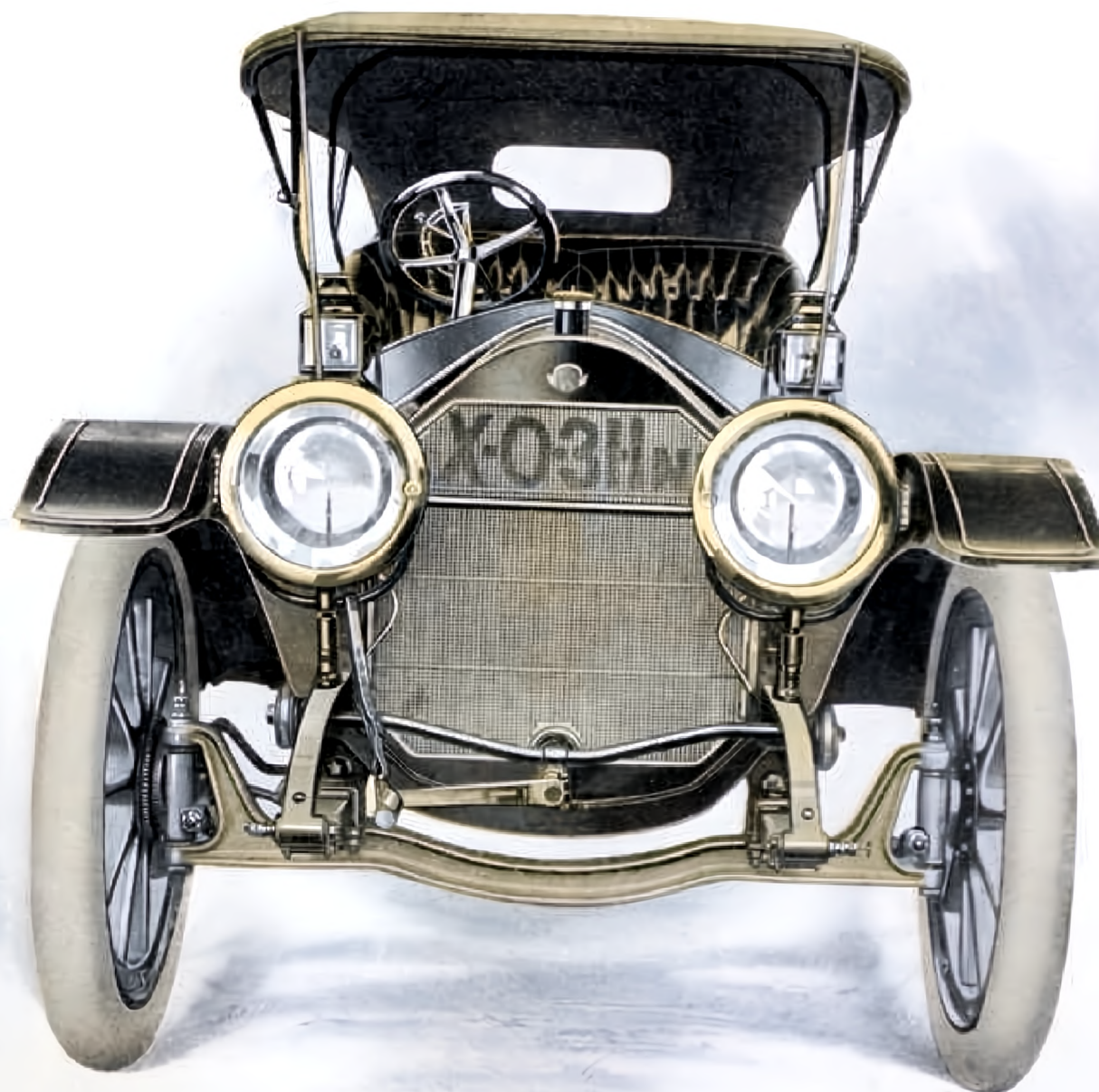
— 30-50 —

1911



NOT AN ASSEMBLED CAR
SIMPLEX MOTOR CAR CO.
MISHAWAKA, INDIANA.

LICENSED UNDER SELDEN PATENT.



FRONT VIEW
AMPLEX
TOY TONNEAU AND ROADSTER



SUMMON up mental pictures of all the truly fine cars you know.

Mentally raise one bonnet after another and inspect their engines.

You will see T-head engines, L-head engines, valve-in-the-head engines, yes.

It may be that you favor the one with valves set on opposite sides of the cylinders; or that in which the valves are arranged on the same side of the cylinders; or yet the third, in which they are placed directly in the cylinder heads.

You observe, of course, that—in spite of these valve foibles of the engineers who designed the motors—there is no radical difference between any two or among the entire number.

It is doubtful, too, whether any one impresses you as possibly being more efficient than any or all of the others. As a matter of fact, in the one great essential, all these motors are on the same level—because they all have valves. They couldn't run without valves and the numerous and complicated component parts upon which the valve operation is dependent.

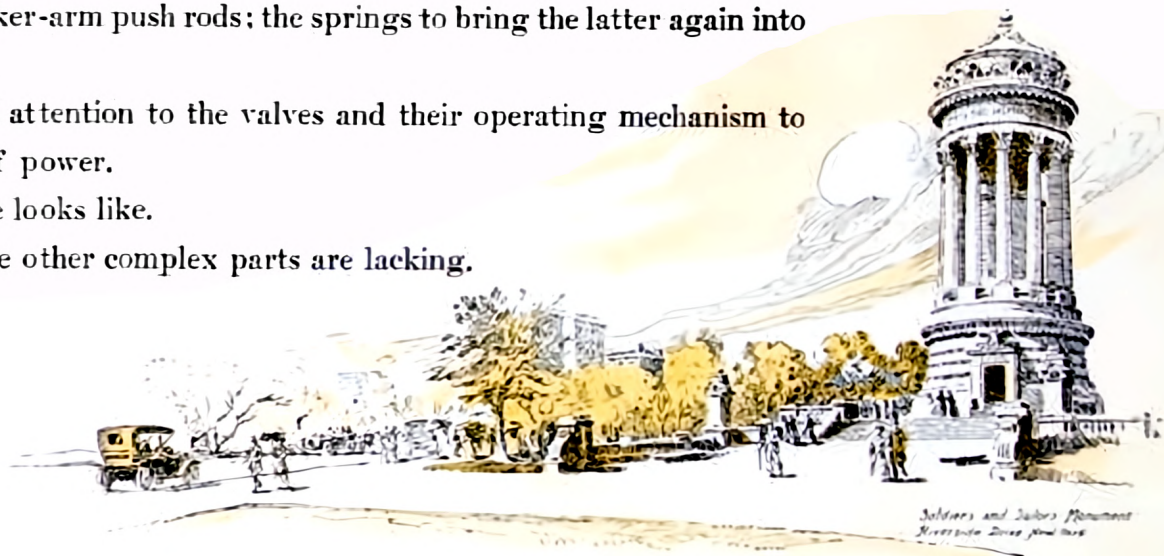
So far as the principle of their action is concerned, all four-cycle motors are as closely related as two peas in a pod, and as much alike.

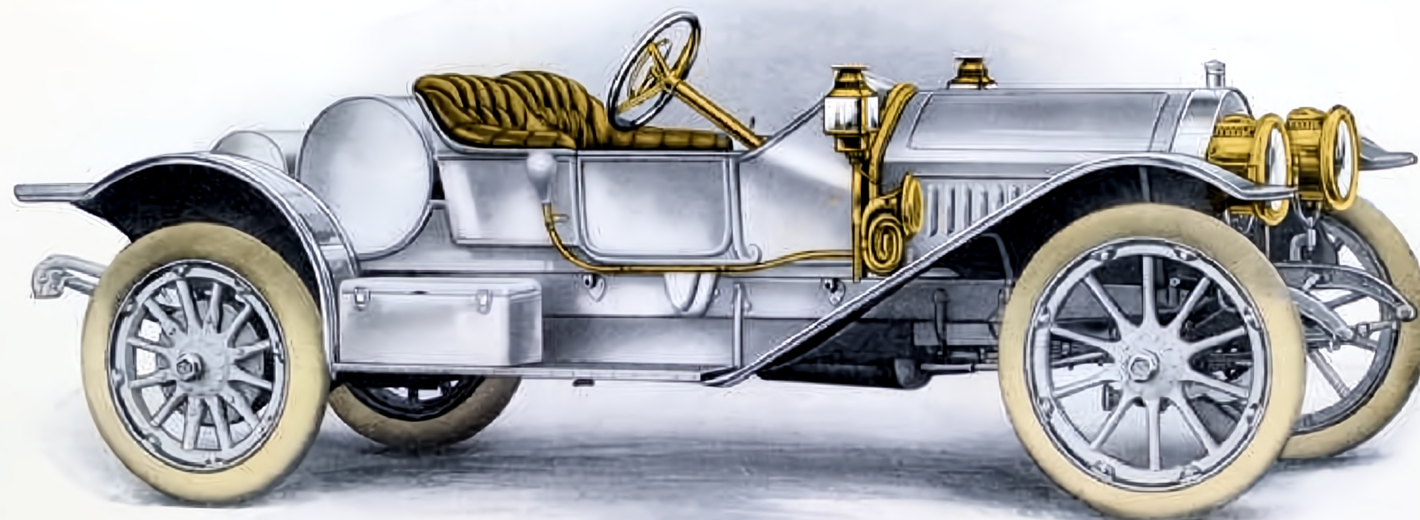
The same is true of the mechanism necessary to the valves. There must always be the gears to drive the camshaft; the cams to lift the valve stems, or the rocker-arm push rods; the springs to bring the latter again into contact with the cams, the rollers, etc., etc.

There must always be the same vigilant care and attention to the valves and their operating mechanism to insure that the motor is developing its full quota of power.

Now turn to the Amplex and see what its engine looks like.

You will perceive at once that valves and all the other complex parts are lacking.





AMPLEX 30-50
ROADSTER

If you should ask why, the answer is this:—The Amplex is a valveless, two-cycle car.

Cloaked behind that simple statement is a significance deep and broad, for the difference between the valveless two-cycle engine and the ordinary four-cycle type is immeasurable—the two types, in operation and in results, are as far removed from each other as the poles.

At the pinnacle of present-day development of the valveless two-cycle stands the Amplex, having been brought to a higher state of perfection than any other engine of that type.

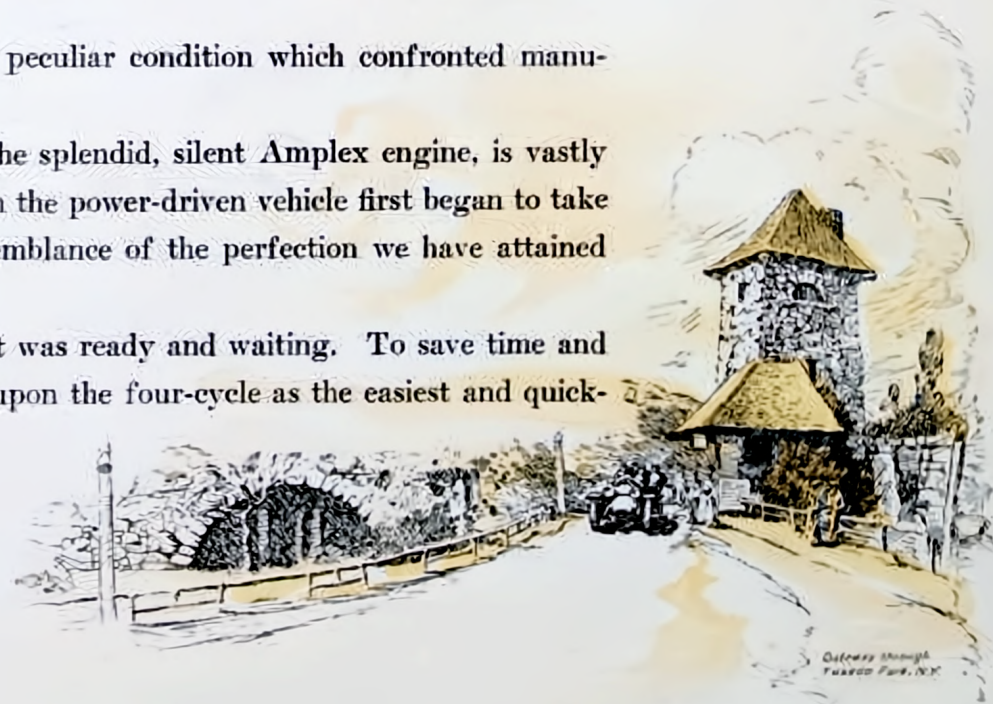
Speaking broadly, one automobile motor of the ordinary four-cycle type is as good as another—for it is admitted by four-cycle manufacturers themselves that it is impossible to improve this type beyond its present status.

It is merely a matter of time and education, we believe, until the four-cycle engine will be obsolete, so far as automobile uses are concerned, and we have the support of many engineers and authoritative minds in this belief.

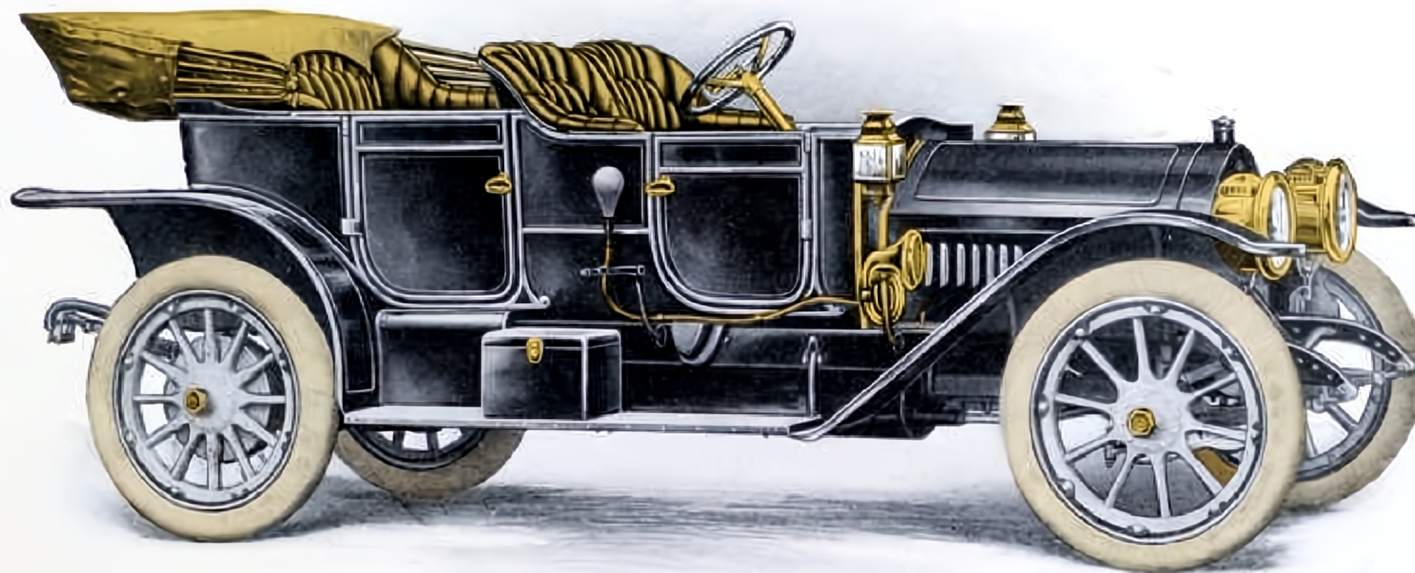
The four-cycle engine owes its present widespread use to a peculiar condition which confronted manufacturers of automobiles in the beginning of the industry.

In essentials, the valveless two-cycle type, as exemplified in the splendid, silent Amplex engine, is vastly simpler than the four-cycle, as we have briefly shown. But, when the power-driven vehicle first began to take its powerful grip on the public, it had not been brought to any semblance of the perfection we have attained in the Amplex.

On the other hand, the four-cycle presented no problems. It was ready and waiting. To save time and money experimenting with the two-cycle, manufacturers seized upon the four-cycle as the easiest and quickest way out of a dilemma—and it is with us yet.



Ostray through
Tuxedo Park, N.Y.



AMPLEX 30-50
CLOSE COUPLED CAR

We saw the possibilities of the two-cycle, and took it up, prepared to go through a long period of experimenting, if necessary.

We saw that the valveless two-cycle, properly developed, would far outdistance the four-cycle in efficiency, in power, in the application of power, and in economy of operation and maintenance.

Difficulties and discouragements we encountered in plenty, but we held hopefully to the course we had laid out.

The result to-day is the Amplex motor—a motor in which we have attained every result we foresaw, and which has gone far beyond our own sanguine expectations.

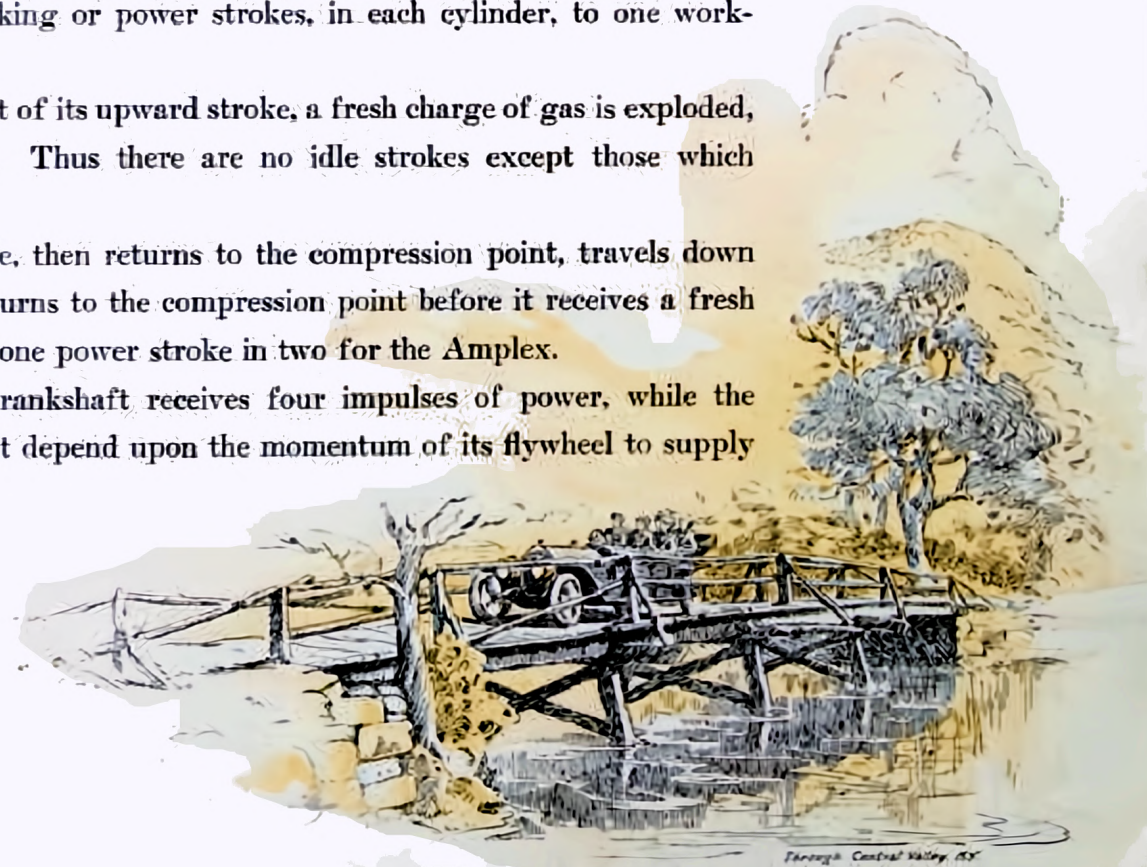
Let us explain, as briefly as we can, wherein the Amplex engine differs from the four-cycle. When we have finished, you will doubtless grant the everlasting superiority of the former.

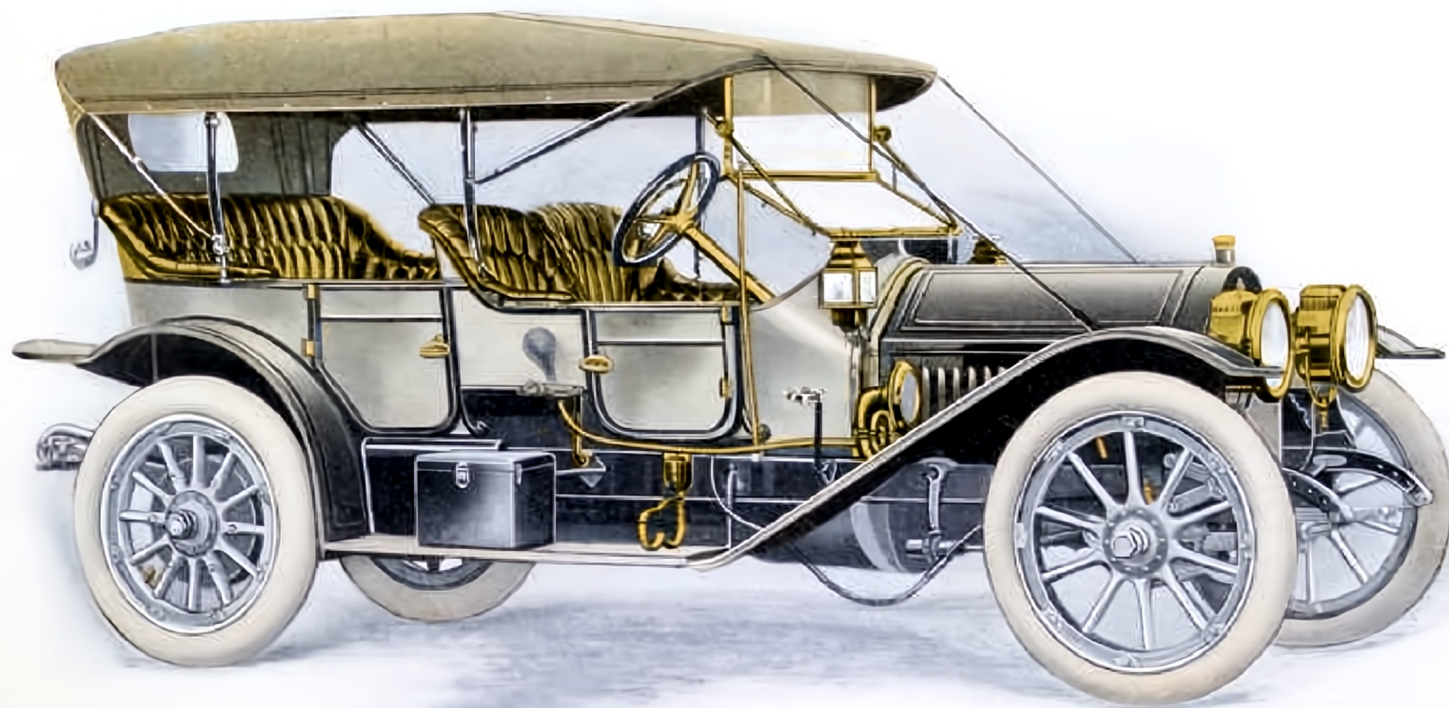
In the first place, the Amplex engine has two working or power strokes, in each cylinder, to one working or power stroke in each cylinder of the four-cycle.

Every time the Amplex piston returns to the limit of its upward stroke, a fresh charge of gas is exploded, putting new power behind the next downward stroke. Thus there are no idle strokes except those which compress the gas.

In the four-cycle, each piston gets a power stroke, then returns to the compression point, travels down again as the crankshaft revolves, and a second time returns to the compression point before it receives a fresh impulse. One power stroke in four for the four-cycle; one power stroke in two for the Amplex.

So, for every complete revolution, the Amplex crankshaft receives four impulses of power, while the four-cycle crankshaft gets only half as many, and must depend upon the momentum of its flywheel to supply the deficiency.





AMPLEX 30-30
FIVE PASSENGER
TOY TONNEAU

Furthermore, the Amplex impulses overlap each other, so that the power flows from engine to driving wheels in a rhythm as continuous and unbroken as the power of an electric motor.

The four-cylinder four-cycle engine cannot supply power save spasmodically. You don't notice that, riding in the car, perhaps, because the flywheel eliminates most of the jerk; but it is true, nevertheless.

Nothing short of eight cylinders of four-cycle can approximate the continuity of the turning power produced by the Amplex engine. The "six" is a step on the way, but you can appreciate that it would be impossible to keep the valves and valve mechanism of an eight-cylinder engine adjusted to a hair, can't you?

We venture to say that not one in a hundred four-cycle engines is operated without loss of power. It cannot be otherwise, for the adjustment of the valves is so delicate—the heat and pounding to which they are subjected is so terrific—that it is next to impossible to maintain that adjustment.

Contrast this with the Amplex—no valves to grind, adjust and putter with, no lost power, all the cylinders delivering power every time the crankshaft revolves, and this power coming from the engine in a steady stream, without the slightest hitch or pause.

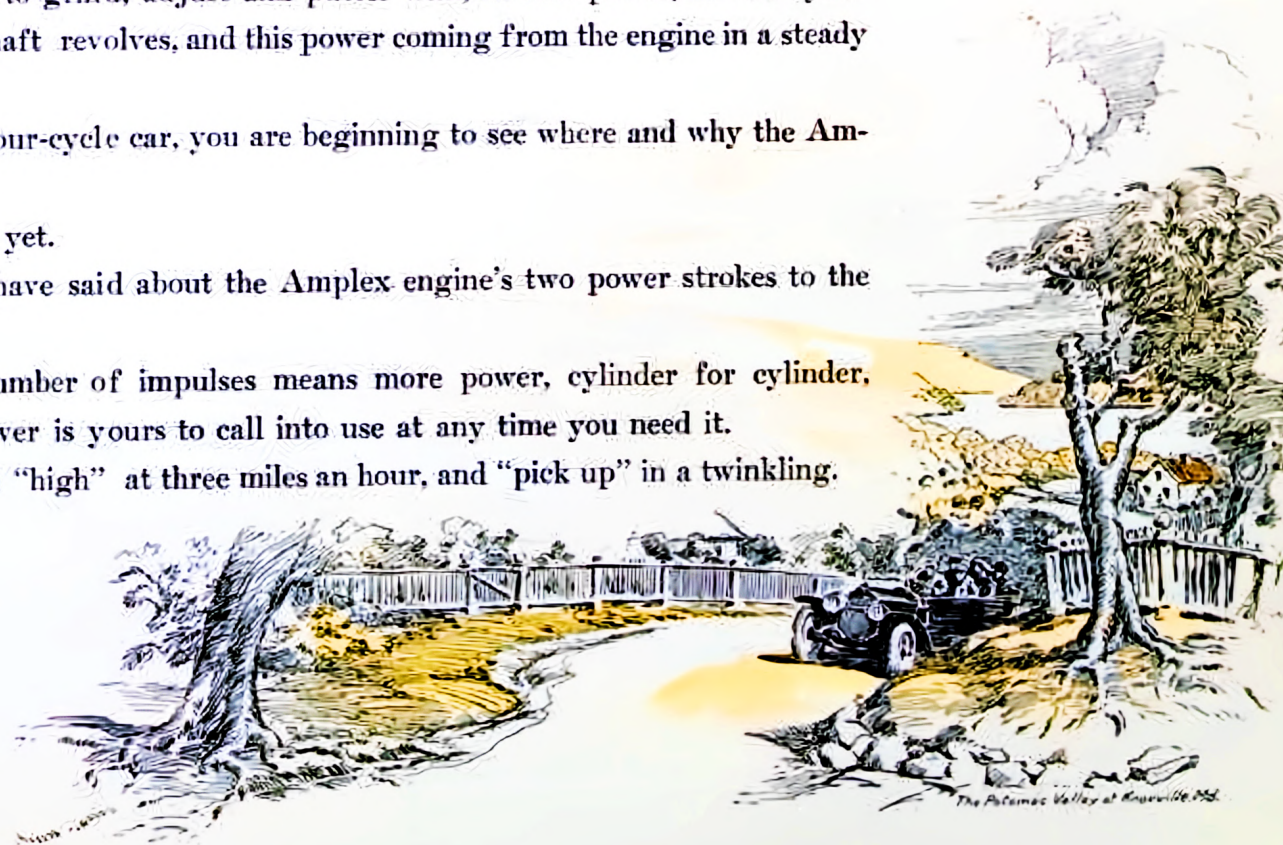
Unless you are literally wedded to your four-cycle car, you are beginning to see where and why the Amplex valveless two-cycle is better, aren't you?

But we haven't covered the entire subject yet.

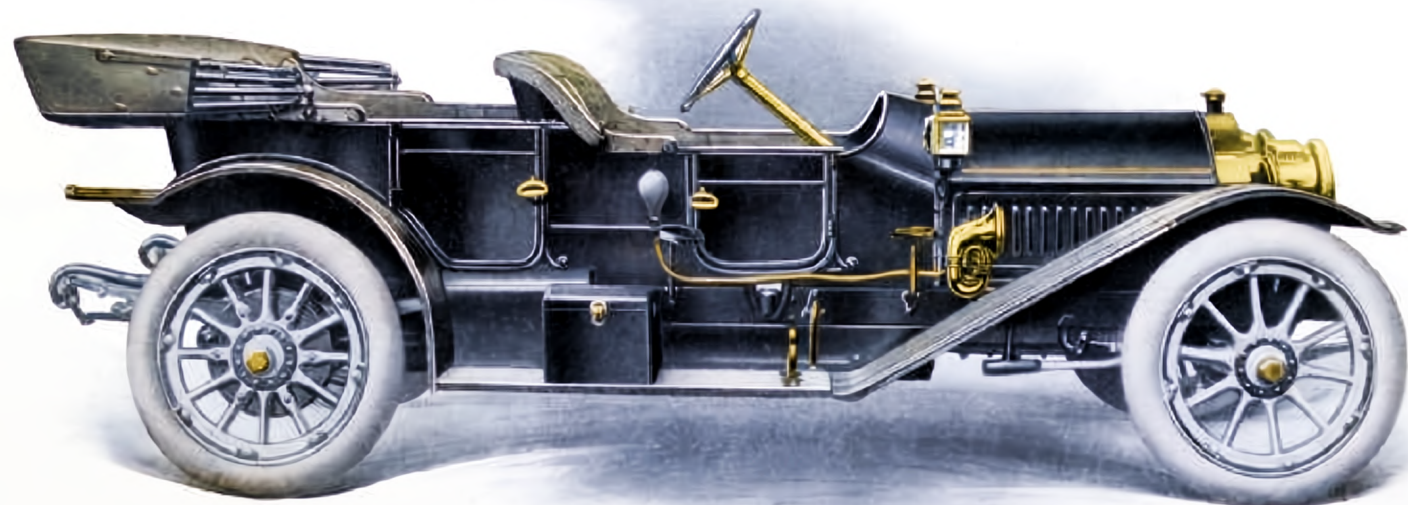
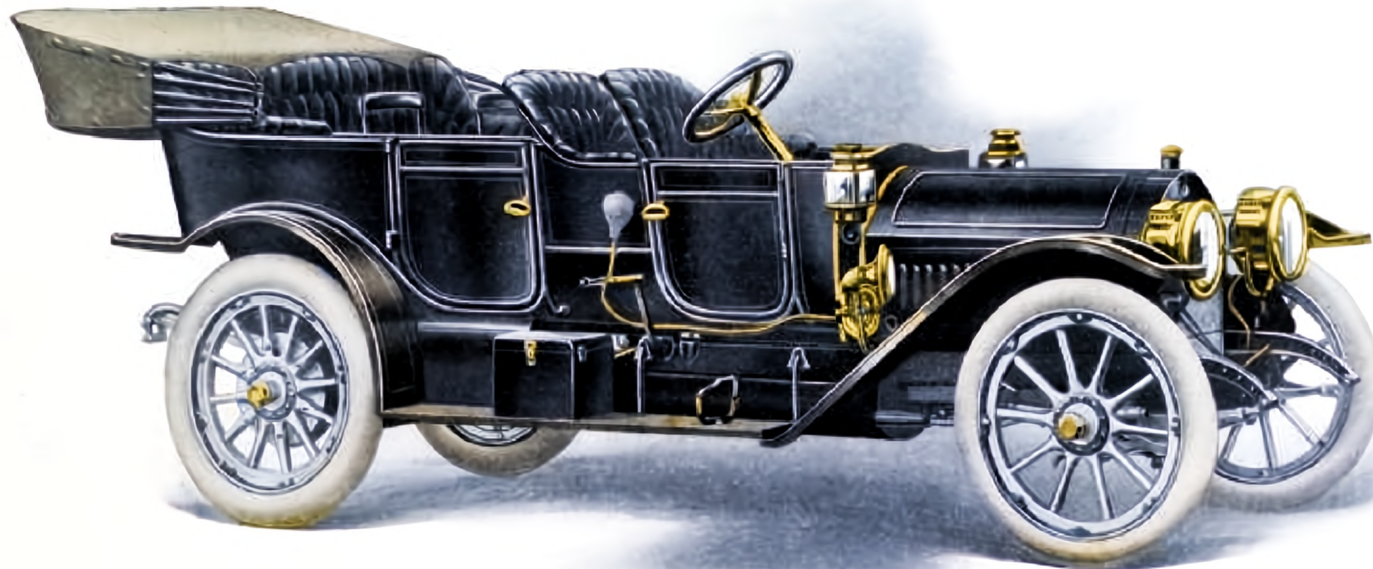
Keep in mind, as you read on, what we have said about the Amplex engine's two power strokes to the four-cycle's one.

As a matter of actual fact, this greater number of impulses means more power, cylinder for cylinder, than the four-cycle can give you, and that power is yours to call into use at any time you need it.

You can creep along, with the Amplex, in "high" at three miles an hour, and "pick up" in a twinkling.



AMPLEX 30-50
SEVEN PASSENGER
TOURING CAR



AMPLEX 30-50
FIVE PASSENGER
TOY TONNEAU

Or you can take hills on the "high" that you wouldn't dream of attempting with a four-cycle car unless you should go into "intermediate" or "low."

In other words, the Amplex is more powerful than a four-cycle of the same cylinder dimensions, because it has these extra power strokes, and at the same time is infinitely more flexible.

And yet, with all its tremendous power, the purr of the Amplex is as soft and smooth as the purr of a kitten. You must listen to hear the Amplex engine when it runs free, so perfectly is each part attuned to the other, and so perfectly does it operate without the aid—or should one say "hindrance"—of valves.

Now imagine this engine placed in a chassis where the harmony of fit and operation between reciprocating parts is as full and complete as in the engine, and you have a fairly adequate idea of the Amplex car.

We believe we have the most perfect development of the perfect type of gas engine, and we have built the other parts of the Amplex on the same high plane.

Wherever two surfaces bear on each other, there must be friction. It follows that the better the surfaces fit and the more smooth they are, the less will be the resistance and consequent friction.

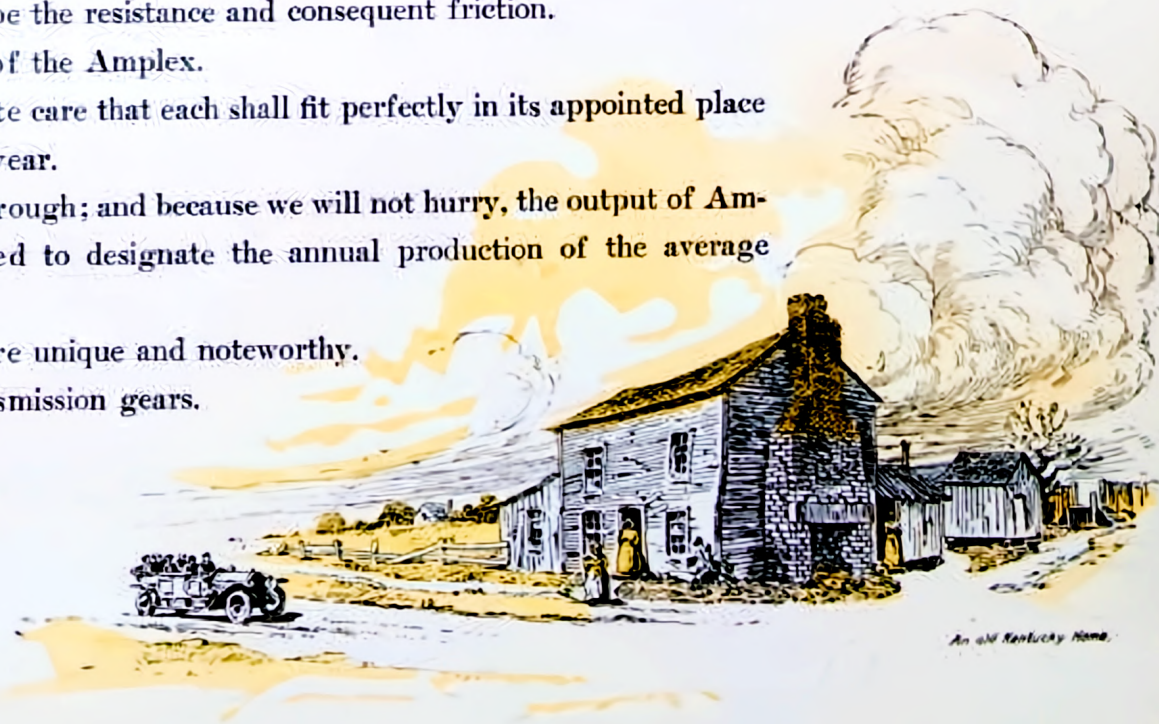
There is not a whine or grind in the operation of the Amplex.

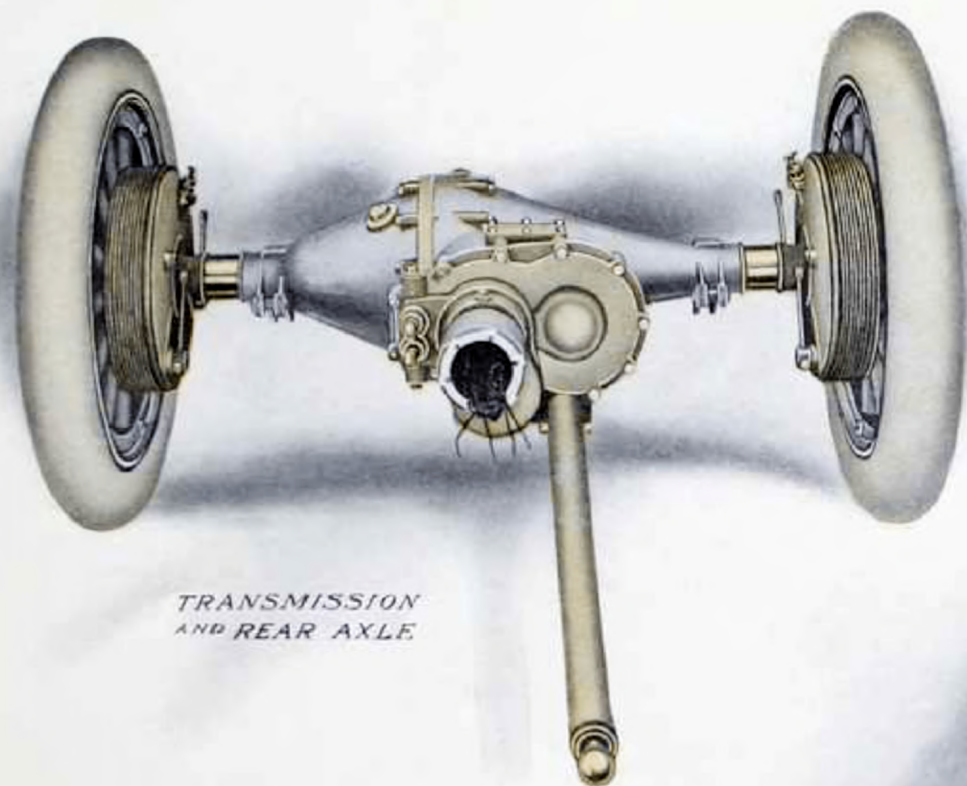
We make the parts in our own factory, with infinite care that each shall fit perfectly in its appointed place and do its work with the least possible friction and wear.

The process is costly, and it is slow, but it is thorough; and because we will not hurry, the output of Amplex cars has never been large, as that word is now used to designate the annual production of the average automobile plant.

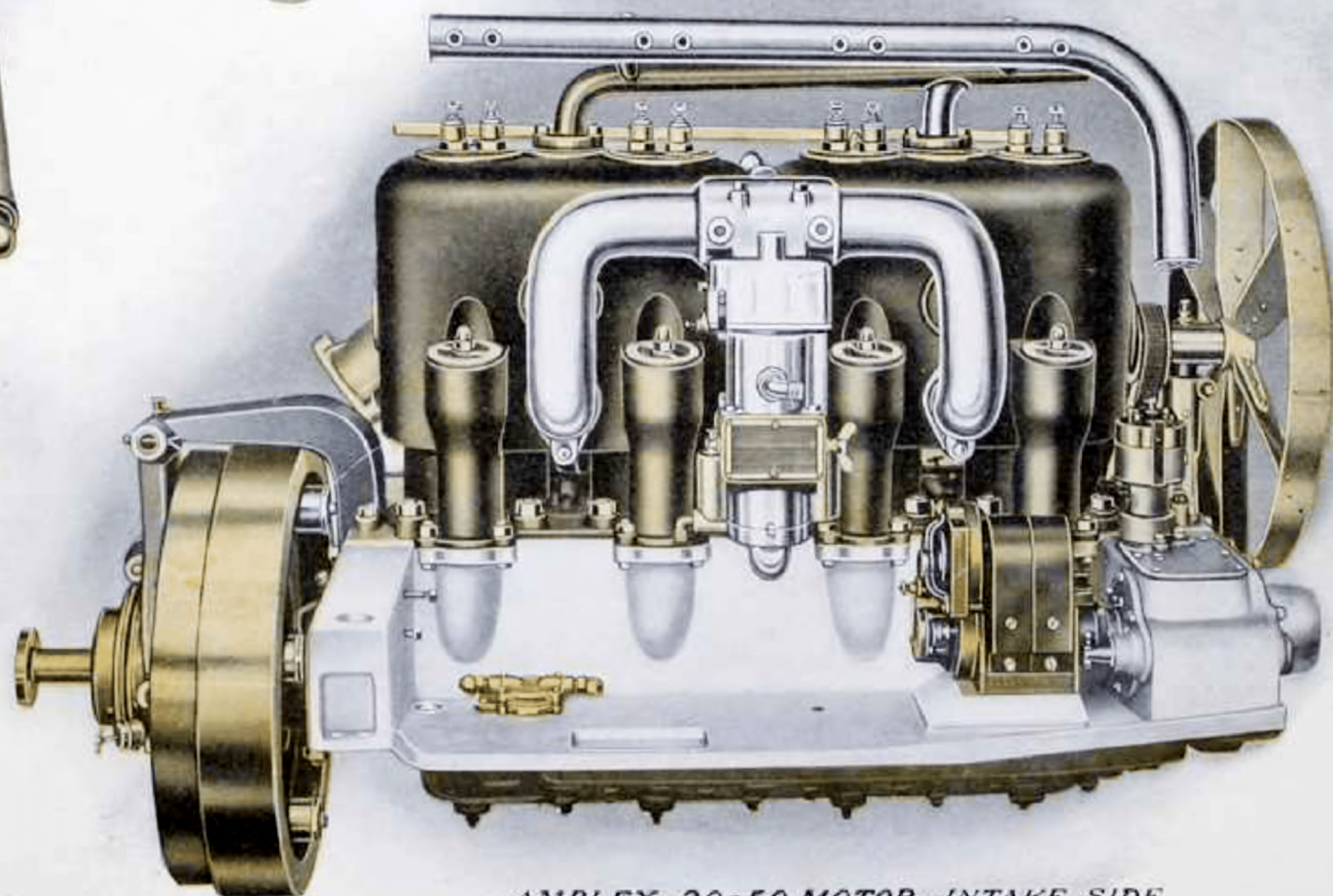
The Amplex possesses several features which are unique and noteworthy.

For instance, the interlocking device on the transmission gears.

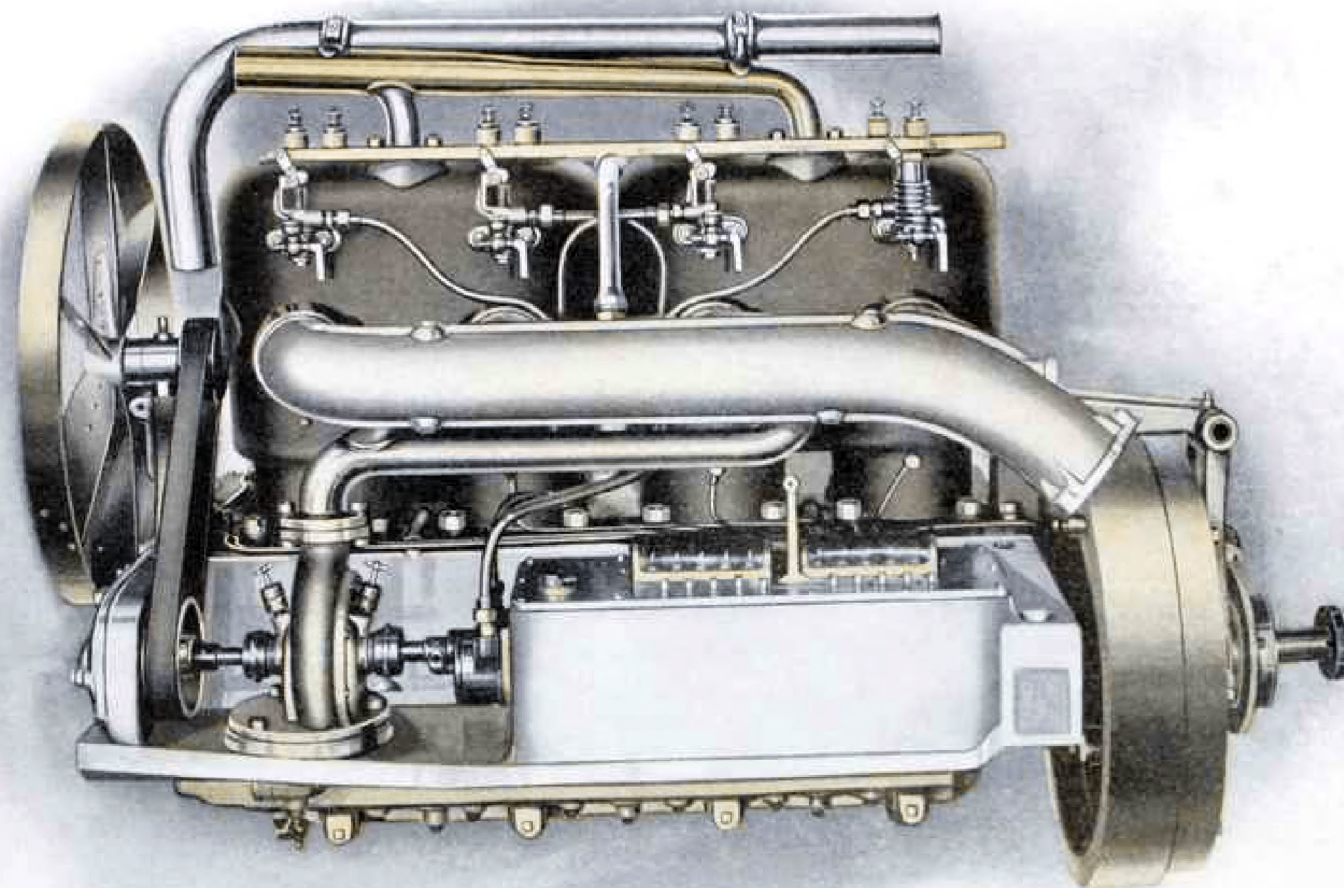




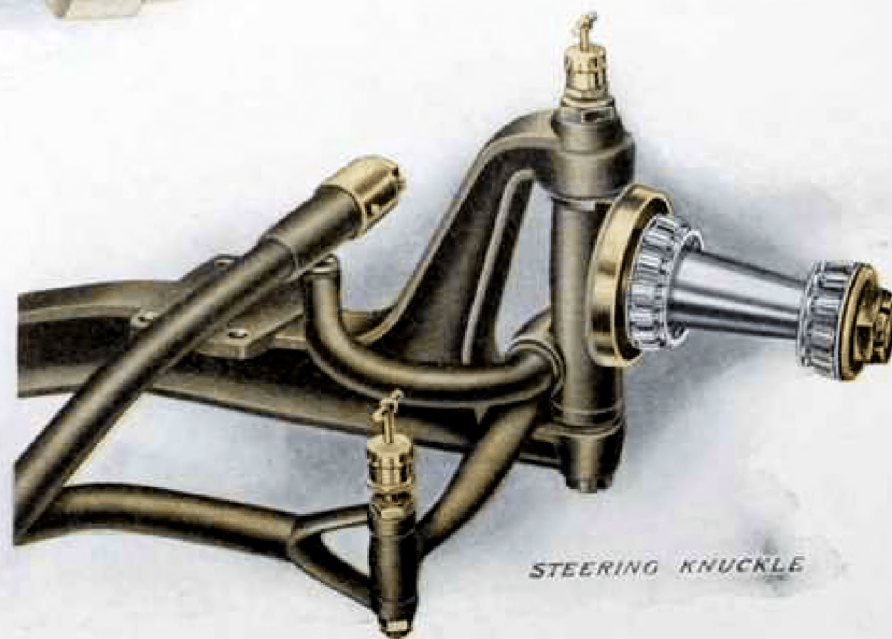
*TRANSMISSION
AND REAR AXLE*



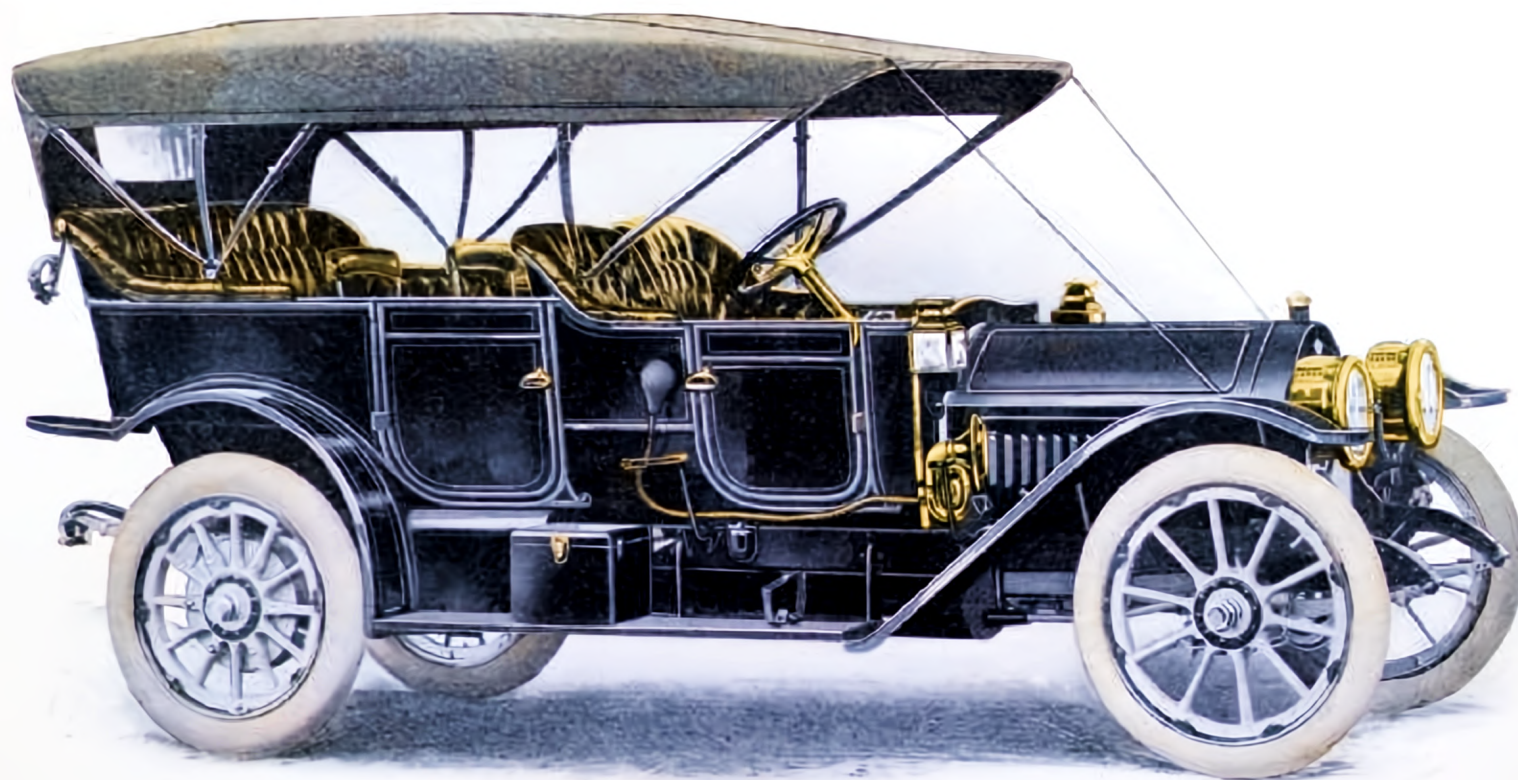
AMPLEX-30-50 MOTOR, INTAKE SIDE



AMPLEX 30-50 MOTOR, EXHAUST SIDE



STEERING KNUCKLE



AMPLEX 30-50
SEVEN PASSENGER
TOURING CAR

Such a thing as stripping a gear in the Amplex transmission is impossible, a simple interlocking device, exclusive to the Amplex, preventing the engagement of two different speed gears at the same time.

The transmission itself is carried on the rear axle, in a rigid unit. Road strains cannot throw it out of alignment. There is practically no angle in the line of drive, and there are no supplementary propeller shaft bearings on the main frame, so there is nothing to impede the delivery of all the motor's power to the rear wheels.

Engine and radiator are relieved from the stress of road inequalities by having a three-point mounting, with globular socket fastenings and springs. The resulting flexibility is such that a strain on the frame is not communicated to these two important members.

Brake adjustment is provided by means of thumb screws on the brake rods, which are accessible by lifting the floor boards.

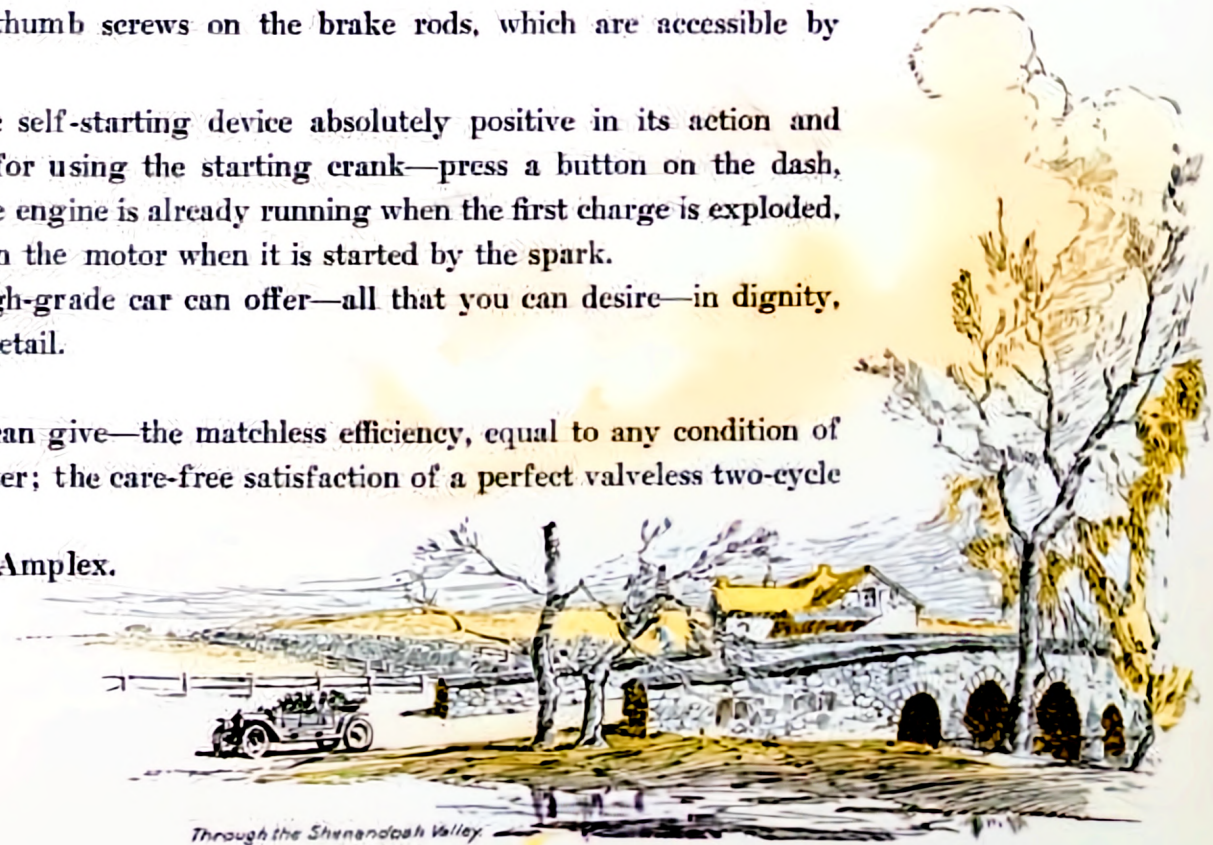
Amplex cars are equipped with a pneumatic self-starting device absolutely positive in its action and simple in its construction. There is no necessity for using the starting crank—press a button on the dash, and the motor starts. Starting in this manner, the engine is already running when the first charge is exploded, and there is absent the strain suddenly imposed on the motor when it is started by the spark.

The Amplex offers you all that any really high-grade car can offer—all that you can desire—in dignity, luxury of finish, refinement and completeness of detail.

In these it is without a superior.

And, in addition, it gives you what no other can give—the matchless efficiency, equal to any condition of hill-climbing or poor going that you will encounter; the care-free satisfaction of a perfect valveless two-cycle motor.

It is a combination not to be had save in the Amplex.



Through the Shenandoah Valley.



AMPLEX 30-30
LIMOUSINE

DETAILS OF CONSTRUCTION

THE MOTOR—Valveless Two-Cycle

CYLINDERS

Cast in pairs with integral water jacket of large capacity. Cylinders and pistons ground so as to be interchangeable. Pistons fitted with three rings above the wrist pin and one below, rings ground on outside diameter and both edges.

CRANK SHAFT

This has five large main bearings supported by the middle section of the crank case, which is ribbed to produce maximum strength. Crank shaft bearings are all carefully ground and bushings fitted with extreme accuracy to insure quiet running and maximum life.

CRANK CASE

This is divided into three horizontal sections. The uppermost section has two arms cast integral, reaching to the main frame, the crank shaft bearings being held between uppermost and middle sections, the bottom section forming an oil well and being easily removed for inspecting or adjusting connecting rods, without disturbing main crank shaft bearings.

CARBURETOR

Amplex special design and manufacture, combining float feed, automatic regulation of mixture for all motor speeds and throttle openings. Heat is supplied to jacket around

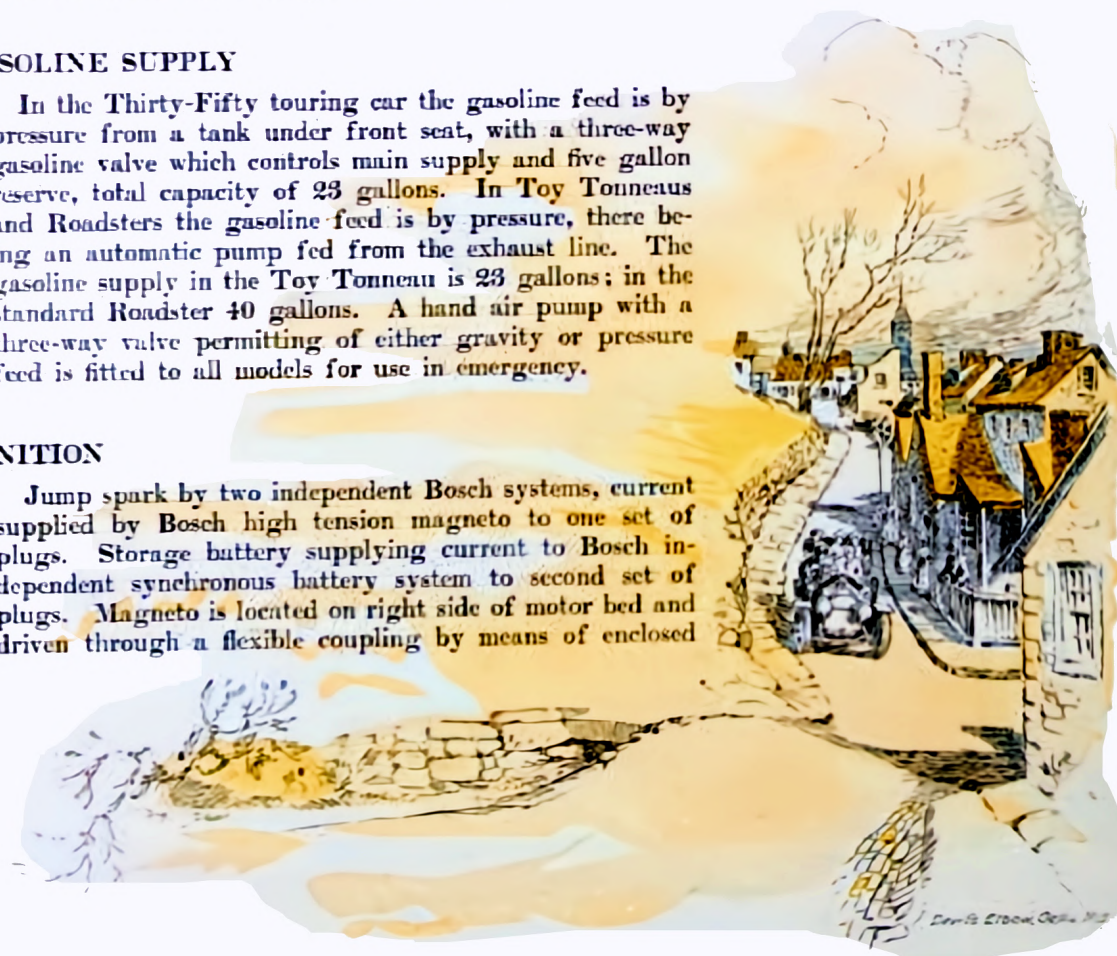
carburetor from the exhaust line, thereby insuring thorough vaporization of all fuel. The auxiliary air valve automatically controls the flow of fuel in proportion to the incoming air without the use of springs of any description, the flow of fuel being also controlled from the dash, giving the operator an opportunity to vary the mixture to suit different atmospheric conditions.

GASOLINE SUPPLY

In the Thirty-Fifty touring car the gasoline feed is by pressure from a tank under front seat, with a three-way gasoline valve which controls main supply and five gallon reserve, total capacity of 23 gallons. In Toy Tonneaus and Roadsters the gasoline feed is by pressure, there being an automatic pump fed from the exhaust line. The gasoline supply in the Toy Tonneau is 23 gallons; in the standard Roadster 40 gallons. A hand air pump with a three-way valve permitting of either gravity or pressure feed is fitted to all models for use in emergency.

IGNITION

Jump spark by two independent Bosch systems, current supplied by Bosch high tension magneto to one set of plugs. Storage battery supplying current to Bosch independent synchronous battery system to second set of plugs. Magneto is located on right side of motor bed and driven through a flexible coupling by means of enclosed





INTERIOR OF
AMPLEX
LIMOUSINE

gears. Coil has convenient hand and kick switch combined with lock. Battery for supplying current to it is located in metal box on right hand running board. The distributor for this coil is mounted in a vertical position on the right hand side of motor, just in front of magneto; and the spark advancing mechanism, which is built into our motor, takes care of both distributor and magneto. This advancing mechanism is an exclusive feature of Amplex motors and gives a very wide range of spark control. All wiring is carried over motor through a seamless brass tube, each lead being let out through independent ferrules, thereby making it impossible to make any mistake in connecting wires.

LUBRICATION

Motor supplied with oil from a mechanical oiler drawing its supply from a reservoir cast integral with the upper section of crank case. Oil is supplied through ten independent leads, one to each bearing, one to each cylinder and one to the gears enclosed in front of crank case. A very valuable feature of this oiling system is that each individual feed may be adjusted to deliver the correct amount of oil to the part which it supplies, with the motor doing a very small amount of work, and there is provided a lever which controls all the feeds, which can be shifted from the seat, thereby increasing the amount of oil in proportion to the work which the motor is doing. This not only gives economy in the use of lubricant, but also does away with the necessity for over supply of the motor when it is doing comparatively light work; and insures a sufficient supply when it is working at its maximum. The oil reservoir has a capacity of ten quarts. One sight feed on the dash indicates that the oiler is working and that it is

supplied with oil. The transmission and differential run in oil, front and rear universal joints encased and packed in grease, and all other wearing parts are provided with grease or oil cups, including all shackle bolts.

MOTOR CONTROL

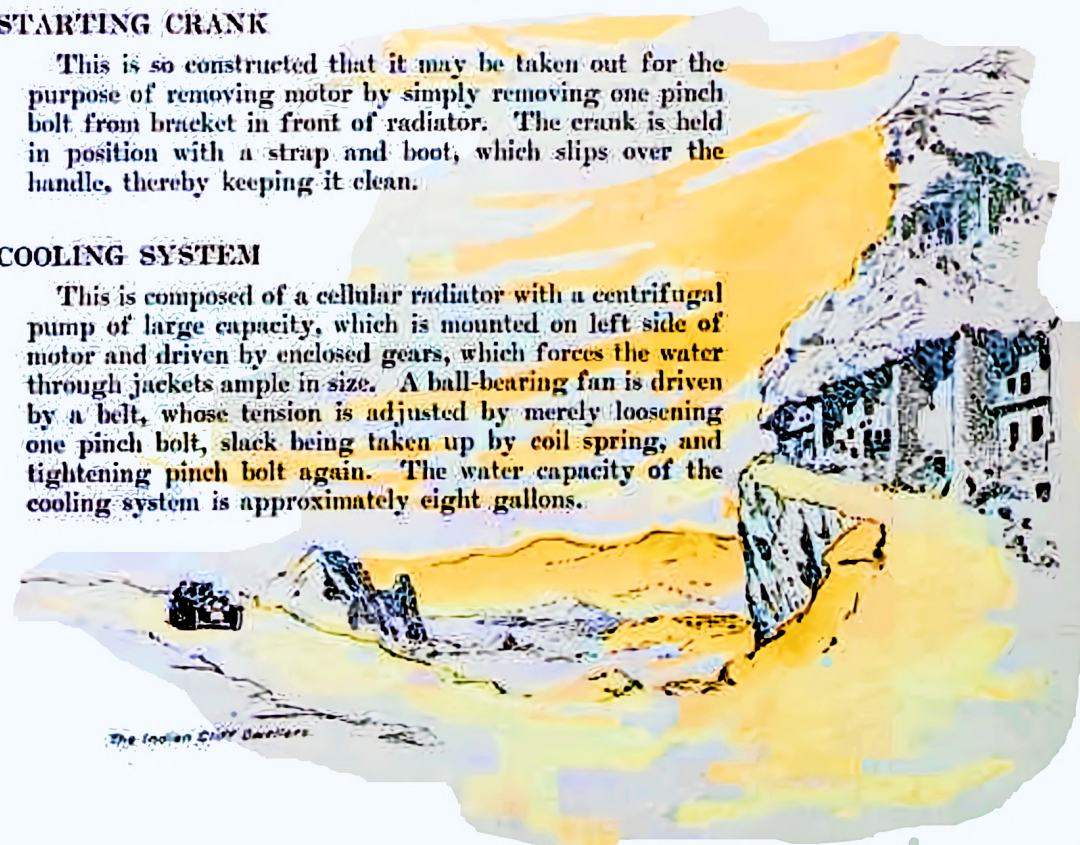
Motor speed regulated by hand lever above steering wheel and also by pedal, both acting direct to throttle. The pedal gives means of instant acceleration. Upon releasing pedal the motor immediately returns to the speed for which the hand lever above steering wheel is set. The spark is advanced or retarded for most efficient time of ignition under all running conditions by the outside lever above steering wheel.

STARTING CRANK

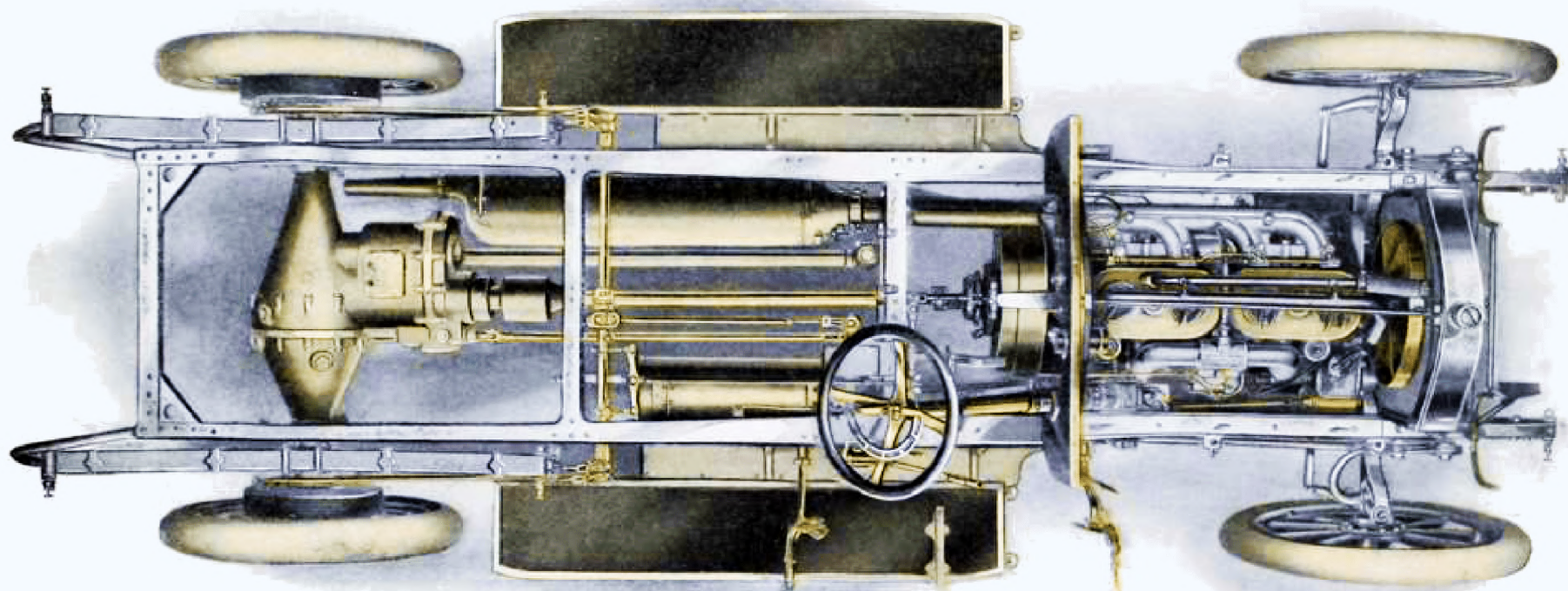
This is so constructed that it may be taken out for the purpose of removing motor by simply removing one pinch bolt from bracket in front of radiator. The crank is held in position with a strap and boot, which slips over the handle, thereby keeping it clean.

COOLING SYSTEM

This is composed of a cellular radiator with a centrifugal pump of large capacity, which is mounted on left side of motor and driven by enclosed gears, which forces the water through jackets ample in size. A ball-bearing fan is driven by a belt, whose tension is adjusted by merely loosening one pinch bolt, slack being taken up by coil spring, and tightening pinch bolt again. The water capacity of the cooling system is approximately eight gallons.



The Indian Cliff Barriers



PLAN VIEW
AMPLEX 30-50
CHASSIS

TRANSMISSION OF POWER TO WHEELS

CLUTCH

The Amplex disc clutch engages with a soft but positive action at all times. It is composed of three gray iron plates driven by the fly wheel and having a large number of cork inserts, these engaging with two saw steel discs mounted on a hardened spider carried on ball bearings on an extension of the crank shaft. To this spider is bolted the front universal joint.

BRAKES

There are four brakes, all acting directly on rear wheels, thus obviating strain on transmission imposed by transmission brake. Both service brakes and emergency brakes are internal expanding, service brake being $2\frac{1}{2}$ by 15 inches, operated by foot pedal; emergency brake, $2\frac{1}{2}$ by $10\frac{3}{4}$ inches, operated by hand lever. All brakes enclosed and protected by discs, which also carry brake operating cams.

RUNNING GEAR

MAIN FRAME

Channel section pressed steel frame, arched above rear axle to allow increased spring action, in connection with low body. Top and bottom flanges of side bars are very wide, particularly where offset or insweep in frame takes place. This feature, combined with all cross members being formed with intrigo-gussets, makes a frame of great strength, particularly as all parts after being pressed are heat treated.

SPRINGS

Four wide semi-elliptical springs, front springs 40 inches long, $2\frac{1}{4}$ inches wide; rear springs 58 inches long and $2\frac{1}{2}$ inches wide. Grease cups lubricate all spring shackle bearings; shock absorbers on both front and rear axles.

AXLES

Front axle is a one piece drop forging of deep "I" beam section. Rear axle tubes are steel of large diameter tapering to where they are bolted to aluminum differential gear housing. Front wheels are carried on Timken roller bearings with ball bearing thrust in steering knuckles.

STEERING

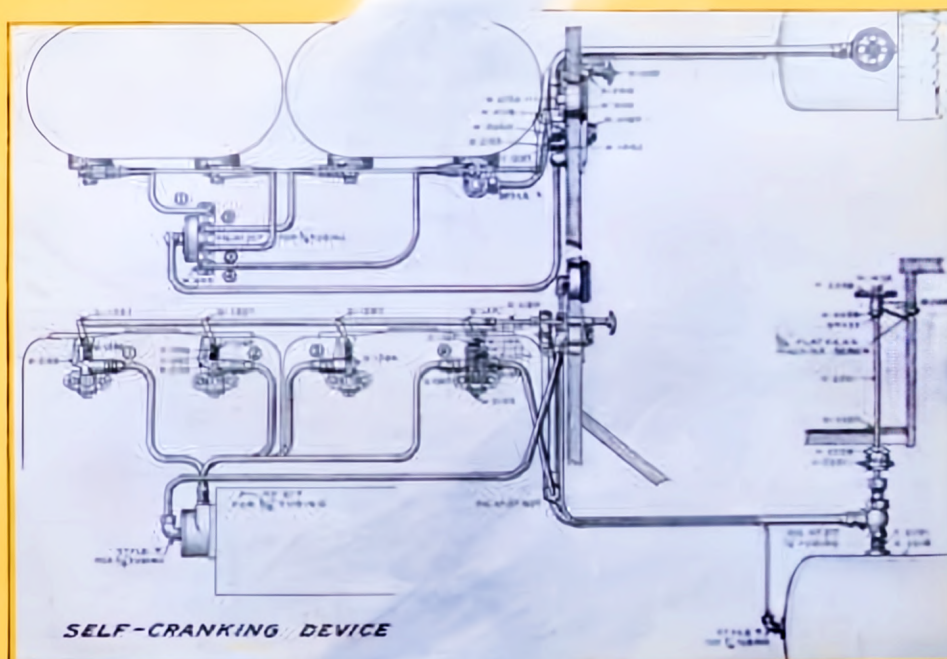
This is the right and left hand, screw and nut type. All parts of steel and carefully hardened and ground; large rigid steering column. Large hand wheel entirely wood covered. All steering levers, knuckles, and spindles are drop forged of very heavy section from the best of material. Steering connecting rod ball joints are encased and all steering connections directly lubricated by grease cups. Steering connecting rod is above front axle, thereby making it impossible for this important part to strike any



Old St. Augustine, Fla.



BRAKE DETAILS



high spots in the road. The rod connecting right and left hand steering levers is back of front axle high enough to be protected by it.

PROPELLER SHAFT

This is made in two parts of unequal length with the forks on each end forged integral, the short end being connected to front universal, bringing the flanged joint in such a location that the clutch may be removed from fly wheel without disturbing any other parts. The propeller shaft running from engine to transmission, which is a unit with the rear axle, and the chassis being carried very low, gives a drive shaft with practically no angularity, and there being no intermediate bearings carried on main frame, there are no parts which require alignment or can be put under strain by any road inequalities.

TRANSMISSION

Speed changing, differential and final drive gears contained in a rigid unit, thereby reducing weight of parts and insuring that all parts of these important units are in perfect alignment and transmitting the power developed by the motor to the surface of road wheels with a minimum loss through friction.

SPEED CHANGING

There are three forward speeds and reverse, operated selectively, direct drive being on third speed. The gears

are shifted by means of rods which slide one above the other, the gears being locked in their proper place by means of spring-operated latches which engage notches cut in these sliding rods. It is made impossible for an operator to engage two gears at a time in a very simple manner, this being done by merely having one notch cut in each of the rods when in neutral position. A small pin working in a bushing between these two rods, entering one of the grooves as soon as one rod is shifted, operates mechanically and is not dependent on any springs, giving absolute protection from stripping gears.

FINAL DRIVE

Is all encased in an aluminum housing which contains speed changing gears, final drive gears and differential; it is internally ribbed for rigidity and strength. Housing is provided with plates for inspection, and plugs for draining. The differential gear unit supported by its own bearings permits rear axle section being removed without disturbing gears or disassembling axle housings. All shafts in rear unit construction and differential housing run on annular ball bearings.

BODY, FENDERS, ETC.

Body construction sheet aluminum over wood frame work. Bonnet, fenders and splash guards steel. Front fenders have splash apron carried well forward and with splash apron which is fitted in front of radiator protects this from road splash in muddy weather.



Pala, Santa Barbara, California

THE SPECIFICATIONS IN BRIEF—COMMON TO ALL MODELS

CYLINDERS	Four, cast in pairs; bore 5 1/16 inches, stroke 5 inches.
TYPE	Valveless two-cycle.
HORSEPOWER	50; 900 revolutions per minute.
IGNITION	Jump spark, by two independent Bosch systems. Bosch high tension magneto to one set of spark plugs; storage battery supplying current to Bosch independent synchronous battery system to second set of plugs.
CARBURETOR	Amplex special float feed automatic.
CONTROL	Hand throttle and foot accelerator.
GASOLINE CAPACITY	Touring Car and Toy Tonneau, 23 gallons. Roadster, 40 gallons.
LUBRICATION	Mechanical force feed to all motor bearings and gears in crankcase, individual feed adjustment. Sight feed on dash.
OIL CAPACITY	All types, ten quarts.
COOLING	Cellular radiator, with centrifugal pump.
CLUTCH	Multiple disc, with cork inserts.
TRANSMISSION	Selective sliding gears, contained in unit on rear axle, side lever control.
SPEEDS	Three forward and a reverse.
BEARINGS	Imported annular ball bearings.
SPRINGS	Semi-elliptical, front and rear.
BRAKES	Service and emergency, internal expanding.
BODY	Sheet aluminum, over wood framework.
FRAME	Channel section, pressed steel, arched above rear axle to allow increased spring action.
AXLES	Front, one-piece drop forging of deep "I" beam section, with wheels carried on Timken roller bearings. Rear axle tubes are steel of large diameter, tapered to differential gear housing.

WHEELBASE	128 inches.
TREAD	56 inches.
WHEELS	Wood, artillery, 36 inches.
TIRE DIMENSIONS	Front 36 x 4 inches, rear 36 x 5 inches.
TIRES	Quick demountable clincher of several standard makes, with Continental Q. D. demountable rims.

STANDARD PAINTING Body and door panels deep green, striped with light green. Under body, bonnet, radiator, frame, fenders, splashers, battery and tool boxes, and moulding, black. Wheels, axles, springs and other running gear parts below the frame, Amplex fawn, striped with black.

STANDARD TRIMMING Open cars, seats black hand buffed, straight grained leather, tufted. Running boards, front floor and heel boards, cork carpet, cocoa mat in tonneau. Enclosed bodies, rear compartment may be upholstered in any of the materials shown on Amplex sample cards. Front seat black, hand buffed straight grained leather.

STANDARD CAR EQUIPMENT } Amplex Semi-Victoria extension cape cart top and top envelope, with side-curtains; Truffault-Hartford shock absorbers and self-cranking device, combination oil and electric side and tail lamps of special design; gas head lights with gas tank or generator, horn, tire irons, shawl rail, foot rest, complete assortment of tools. Push button and buzzer, speaking tube, folding foot rail, toilet cases to match upholstery, dome light with switch and battery, robe rail.

ENCLOSED BODY EQUIPMENT }

PRICES F. O. B. FACTORY

Fore-door Touring Car, Standard finish and equipment	\$4300
Toy Tonneau,	4300
Close Coupled,	4300
Roadster,	4300
Fore-door Limousine,	5650

All types equipped with Amplex self-cranker

APPURTENANCES

Amplex folding wind shield for any open car	\$ 50
Seat covers for Amplex Thirty-Fifty Touring car body	65
For Thirty-Fifty Close Coupled body	55
For Toy Tonneau	55

For Roadster	\$ 45
Trunk rack, Amplex	10
Amplex Thirty-Fifty chassis in standard finish	3850
Fore-door Limousine body in standard finish and equipment	1800

